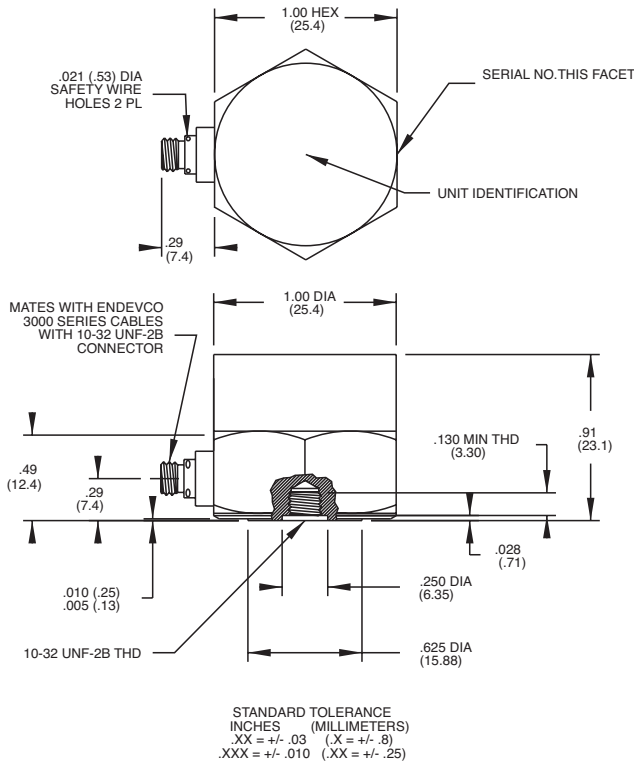




Model 7703A -200, -300, -1000 Piezoelectric accelerometer

Features

- **NEW!** 7703A-200-R and 7703A-1000-R available
- Low base strain sensitivity
- Ground isolated
- Hermetically sealed
- To +550°F (+288°C), temperature compensated
- Side connector, 1" hex
- High output/modal applications
- Radiation environment up to 10⁸ rads

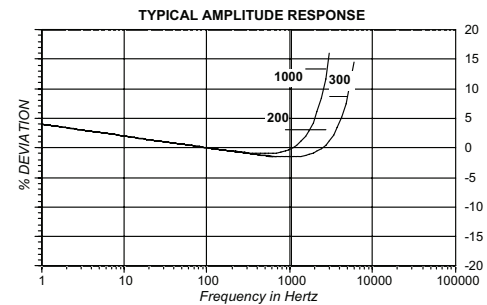
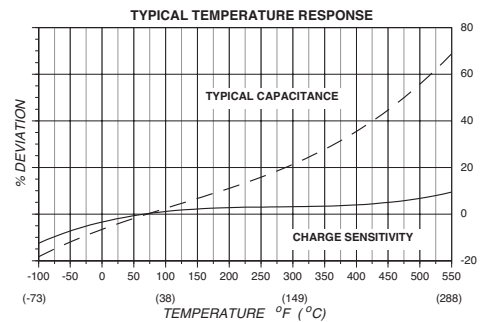


Description

The Endevco® model 7703A-XXXX Isoshear piezoelectric accelerometer is designed for modal measurement on large structures and objects. The Isoshear design is extremely stable and virtually insensitive to such environmental inputs as base bending and thermal transients. This line of accelerometers has been tested in a radiation environment up to 10⁸ rads. They are also capable of measurement up to +550°F (+288°C). These units are hermetically sealed against external contamination. The accelerometer is a self-generating device that requires no external power source for operation.

The model 7703A-XXXX features Endevco's Piezite® type P-8 crystal element, operating in shear mode. This unit exhibits low base strain sensitivity, high resonance frequency, and excellent output stability over time. Signal ground is isolated from the outer case of the unit. The accelerometer features a 10-32 side-connector. A low-noise coaxial cable is supplied for error-free operation. The model number suffix indicates acceleration sensitivity in pC/g; i.e., 7703A-1000 features output sensitivity of 1000 pC/g.

Endevco signal conditioner models 133, 2771C, 2775B, 6634C or Oasis 2000 computer-controlled system are recommended for use with this high impedance accelerometer.



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smart engineering for
extreme environments

Specifications

The following performance specifications conform to ISA-RP-37.2 (1964) and are typical values, referenced at +75°F (+24°C) and 100 Hz, unless otherwise noted. Calibration data, traceable to National Institute of Standards and Technology (NIST), is supplied.

Dynamic characteristics	Units	-200	-300	-1000
Charge sensitivity				
Typical	pC/g	200	300	1000
Minimum	pC/g	180	270	900
Frequency response				
• ————— See typical amplitude response ————— •				
Resonance frequency				
Typical	kHz	17	14	7.5
Minimum	kHz	13	10	6
Amplitude response [1]				
±5%	Hz	1 to 4000	1 to 3000	1 to 2000
±1 dB	Hz	1 to 6000	1 to 5000	1 to 3000
• ————— See typical curve ————— •				
Temperature				
-67°F (-55°C) max/min	%	-13.6 / -1	-13.6 / -1	-13.6 / -1
+350°F (+177°C) max/min	%	+12 / -5.6	+12 / -5.6	+12 / -5.6
+550°F (+288°C) max/min	%	+24.2 / -2.4	+24.2 / -2.4	+24.2 / -2.4
Transverse sensitivity	%	≤ 3	≤ 3	≤ 3
Amplitude linearity	%	1/125 g	1/85 g	1/25 g
Up to vibration limit				

Electrical characteristics

Output polarity	Acceleration directed into the base of unit produces positive output at center socket of receptacle			
Resistance [2]	GΩ	≥ 10	≥ 10	≥ 10
Resistance at +550°F (+288°C)	MΩ	≥ 25	≥ 25	≥ 25
Isolation	GΩ	≥ 1	≥ 1	≥ 1
at +550°F (+288°C)	MΩ	≥ 10	≥ 10	≥ 10
Capacitance	pF	5600	5600	5600
Grounding	• ————— Signal return isolated from case ————— •			

Environmental characteristics

Temperature range [3]	• ————— -67°F to +550°F (-55°C to +288°C) ————— •			
Humidity	• ————— Hermetically sealed ————— •			
Sinusoidal vibration limit	g pk	850	675	500
Shock limit [4]	g pk	2000	1600	1000
Base strain sensitivity	equiv. g pk / μ strain	0.0004	0.0001	0.00008
Electromagnetic sensitivity	equiv. g rms / gauss	0.0002	0.0002	0.0001
Thermal transient sensitivity	equiv. g pk / °F (/°C)	0.002 (0.004)	0.001 (0.002)	0.001 (0.002)
Radiation				
Integrated gamma flux	rad	up to 10 ⁸	up to 10 ⁸	up to 10 ⁸
Integrated neutron flux	N/cm ²	up to 10 ¹⁰	up to 10 ¹⁰	up to 10 ¹⁰

Physical characteristics

Dimensions	• ————— See outline drawing ————— •			
Weight	gm (oz)	62 (2.2)	70 (2.5)	120 (4.2)
Case material	• ————— Stainless steel ————— •			
Connector	Coaxial receptacle with 10-32 UNF threads designed to mate with Endevco model 3000 series cables			
Mounting torque	lbf-in (Nm)	18 (2)	18 (2)	18 (2)

Calibration

Supplied:				
Charge frequency response	%	20 to 4 kHz	20 to 3 kHz	20 to 3 kHz
	dB	4 kHz thru resonance	3 kHz thru resonance	3 kHz thru resonance
Charge sensitivity	pC/g			
Maximum transverse sensitivity	%			
Capacitance	pF			

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Accessories

Product	Description	7703A -200, -300, -1000	7703A -200-R, -1000-R
3090DV-120	Cable assembly, for use up to 500°F, 10 ft	Included	Optional
2981-12	Mounting stud, 10-32 to 10-32	Included	Included
EHM464	Hex key wrench	Included	Optional
3075M6-120	Cable assembly, for use up to 500°F, 10 ft	Optional	Optional
3097M1-120	Cable assembly, for use up to 302°F, 10 ft	Optional	Optional
2981-3	Stud, 10-32 adapter	Optional	Optional
2981-4	Mounting stud, 10-32 to M5	Optional	Optional
133	Signal conditioner	Optional	Optional
2771C	In-line charge convertor IEPE powered	Optional	Optional
2775B	Signal conditioner	Optional	Optional
6634C	Signal conditioner - does not support i-TEDS	Optional	Optional
4990A-X	Oasis 2000 computer-controlled system with 428 and/or 433	Optional	Optional

Notes:

1. Low-end response of the transducer is a function of its associated electronics. Models -200, -300 and -1000 have case resonance at approximately 10 kHz.
2. Prolonged exposure at maximum temperature may decrease the return to room temperature resistance to as low as 25 MΩ but will not degrade the overall performance of the unit. All units are processed to initially meet 10 GΩ at room temperature.
3. Charge output is temperature compensated.
4. Short duration shock pulses, such as those generated by metal-to-metal impacts, may excite transducer resonance and cause linearity errors. See TP290 for more details.
5. Maintain high levels of precision and accuracy using Endeveco's factory calibration services. Call Endeveco's inside sales force at 1-800-982-6732 for recommended intervals, pricing and turn-around time for these services as well as for quotations on our standard products.